WE CLAIM:

1. In a method of making a dual work function gate electrode of a CMOS semiconductor structure, the improvement comprising formation of the dual work function gate electrode so that there is no boron penetration in the channel region and no boron depletion near the gate oxide, comprising:

a) forming a gate oxide layer over a channel of a nMOS site and over a channel of a pMOS site;

b) forming an undoped polysilicon layer over said gate oxide layer;

c) masking said pMOS site, forming an a-Si layer over said nMOS site using a first heavy ion implantation, and implanting arsenic solely into said a- Si layer;

d) masking said nMOS site formed by step c), forming an a-Si layer over said pMOS site using a second heavy ion implantation, and implanting boron solely into said a -Si regions;

e) laser annealing said nMOS and pMOS sites for a sufficient period of time and at an energy level sufficient to melt at least a portion of the a- Si but insufficient to melt the polysilicon; and

f) affecting cooling after laser annealing to convert a- Si into polysilicon without gate oxide damage.

2. The method of claim 1 wherein in step c), said first heavy ion implantation is affected by selecting a material from the group consisting of Ge or Si.

3. The method of claim 2 wherein in step d), said second heavy ion implantation is affected by selecting a material from the group consisting of Ge or Si.

4. The method of claim 3 wherein in step e) said pulse time for laser annealing is between about 40 ns to about 80 ns.

5. The method of claim 4 wherein said laser energy level sufficient to melt at least a portion of a- Si but insufficient to melt said polysilicon is between about 0.3 J/cm^2 to about 0.7 J/cm^2.

6. The method of claim 5 wherein in step d) said boron implanting in said a- Si regions is in a concentration range from about 1 x 10^{19} cm^{-3} to about 5 x 10^{20} cm^{-3}.

7. The method of claim 2 wherein said first heavy ion implantation is affected by using Ge.

8. The method of claim 2 wherein said first heavy ion implantation is affected using Si.

9. The method of claim 3 wherein said second heavy ion implantation is affected using Ge.

10. The method of claim 3 wherein said second heavy ion implantation is affected using Si.